REMARKS

This amendment is responsive to the Final Office Action dated July 23, 2008. Applicant has amended claims 1, 2, 15, 26, 29, 34, 35 and 37 and added new claim 39. Applicant has also cancelled claim 38. Claims 1–37 and 39 are pending.

Claim Rejection Under 35 U.S.C. § 103

In the Final Office Action, the Examiner rejected claim 1–23 and 25–37 under 35 U.S.C. 103(a) as being unpatentable over Kuhl et al. (US 2003/0118026) in view of Kilkki et al. (US 6,041,039). Applicant respectfully traverses the rejection to the extent such rejections may be considered applicable to the claims as amended. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

Independent Claims 1, 14, 26 and 29

The applied references lack any teaching to suggest, for example, a method comprising receiving, with a network device that supports at least three network protocols, a packet containing a first class of service (CoS) information, wherein the first CoS information specifies a class of service for the packet in a format that conforms to a first of the at least three supported network protocols used within a network and storing, within the network device, intermediate CoS information that provides a universal classification mechanism independent of: (i) any layer two protocols used within the network, and (ii) protocols of layers on top of layer two protocols used within the network, as required by Applicant's currently amended claim 1.

The applied references also lack any teaching to suggest the method further comprising accessing the first CoS information within the packet to determine the class of service for the packet, mapping the first CoS information to the intermediate CoS information based on the class of service determined for the packet, mapping the intermediate CoS information to a second CoS information, wherein the second CoS information specifies the class of service for the packet in a format that conforms to a second of the at least three supported network protocols used within the network, and outputting the packet with the network device to forward the packet within the network in accordance with the second network protocol, the packet containing the second CoS

information that specifies the class of service information for the packet in accordance the second network protocol, as recited by Applicant's currently amended claim 1.

Contrary to Applicant's currently amended claim 1, the primary reference relied on by the Examiner, or the Kuhl reference, maps ***physical connections*** over which packets (or more particularly, ATM cells) travel through the network to an intermediate class of service, instead of mapping the first CoS information to the intermediate CoS information based on the class of service ***determined for the packet***, as required by Applicant's claim 1. Kuhl explicitly requires that, during a first stage, ATM QoS parameters are mapped "to a class of service ***for the connection...***"[1] Kuhl explains that each ATM connection has an acceptable quality of service, such as level of errors in the connection, and QoS requirements are defined for a connection as a whole.[2] Kuhl further explains that the connections are mapped to a class of service when the connection is established.[3] In other words, Kuhl performs the mapping statically on a per connection when establishing a connection rather than Applicant's required per packet basis. For at least these reasons, Applicant submits that Kuhl lacks any teaching to suggest accessing the first CoS information within the packet to determine the class of service for the packet, and mapping the first CoS information to the intermediate CoS information based on the class of service determined for the packet, as required by Applicant's claim 1.

More specifically, connections, as noted by paragraphs [0030] of Kuhl, QoS "is negotiated for each connection when the connection is established." Connections represent static physical links within a network over which data traffic or packets travel. The Kuhl mapping, as stated above, between connections and the intermediate CoS information only occurs once, and Kuhl specifically states that the ATM QoS parameters are mapped "to a class of service for the connection ***when the connection is established.***"[4] Moreover, Kuhl provides that the QoS is negotiated when the connection is established, therefore obviating any need to access the first CoS information within the packet to determine the class of service ***for the packet***, as required by Applciant's claim 1.

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[1] ¶ [0030] (emphasis added).
[2] ¶¶ [0047], [0049].
[3] ¶¶ [0047], [0049].
[4] ¶ [0064] (emphasis added).

In other words, Kuhl provides a mapping from connection to an intermediate class of service based on physical requirements for that connection (e.g., loss, bit-rate). As a result, Kuhl's system does not suggest inspecting each packet, cell or frame, but rather only determining over which connection the packet, cell or frame was received, contrary to Applicant's currently amended claim 1, which requires accessing the first CoS information within the packet to determine the class of service for the packet.

The Examiner suggests, in rejecting Applicant's currently amended claim 1, that the CLP bit of each cell represents the first CoS information of the packet. Applicant disagrees. However, even assuming the Examiners suggestion is correct, the CLP bit is not used by the Kuhl system to map the CLP bit to the intermediate CoS information. Instead, Kuhl teaches mapping QoS parameters for each ***connection*** to the intermediate CoS information when the connection is established. Kuhl does not suggest that the CLP bit or any other QoS information from a packet itself is used. As a result, the Examiner's suggestion that the CLP may represent first CoS information is improper.

Considering that Kuhl teaches away from mapping the first CoS information to the intermediate CoS information based on the class of service ***determined for the packet***, as required by Applicant's claim 1, it follows that, regardless of the teachings of Kilkki, the combination of Kuhl and Kilkki fails to reach Applicant's claim 1. The Examiner, in rejecting claim 1, recognized that the CLP bit "does not appear to exactly serve as a full featured *class of services*." (Emphasis Examiner's) The Examiner then referenced Applicant's specification to suggest it is well known to include ATM class of service information in the header of an ATM cell and also cited Kilkki for its teaching concerning this same disclosure. Applicant reserves comment with respect to these teachings, but notes that Kulh **does not utilize any CoS information in the received packet when mapping**, but instead relies on QoS parameters of the ***connection***. Thus, Kuhl disregards any class of service information of the header when mapping from the first CoS information (as the Examiner states Kilkki teaches) to the intermediate CoS information. Whether Kilkki teaches to a full class of service or not, the combination of Kuhl with Kilkki, as a result of Kuhl teaching away from per packet mappings, fails to reach Applicant's invention as set forth in currently amended claim 1.

Applicant also notes that the applied references lack any teaching to suggest a network device that supports at least three network protocols, as required by Applicant's currently amended claim 1. Kulh teaches to a one-to-one mapping QoS levels between MPLS and ATM connections in a network element but appears silent with respect to whether or not the network device supports an additional or third network protocol. The portions of Kilkki cited by the Examiner fail to cure this deficiency and Kilkki generally refers only to the ATM protocol. The applied references therefore lack any teaching to suggest a network device that supports at least three network protocols, as required by Applicant's currently amended claim 1.

Applicant's independent claims 15, 26 and 29 have also been amended in a manner similar to that of claim 1. As a result, Applicant submits that the applied references also fail to teach or suggest each of these claims 15, 26 and 29 for reasons similar those stated above with respect to claim 1.

For example, the applied references lack any teaching to suggest a system that supports at least three network protocols, the system comprising a first interface to receive a packet containing data including a first class of service (CoS) information that conforms to a first one of the at least three network protocols, access the data of the packet to determine the first CoS information, and map the first CoS information to intermediate CoS information based on the first CoS information determined for the packet by updating the data of the packet, wherein the intermediate CoS information provides a universal classification mechanism independent of any layer two protocols and protocols of layers on top of layer two protocols used by the network device, as required by Applicant's currently amended claim 15.

The applied references also lack any teaching to suggest the system further comprising a second interface to map the intermediate CoS information to a second CoS information that conforms to a second one of the at least three network protocols by updating the data of the packet, as required by Applicant's currently amended claim 15.

As another example, the applied references lack any teaching to suggest a network device that supports at least three network protocols comprising a control unit that stores intermediate class of service (CoS) information that provides a universal classification mechanism independent of any layer two protocols and protocols of layers on top of layer two protocols used by the network device, associates the intermediate CoS information with a packet based on data

within the packet that defines first CoS information, wherein the first CoS information conforms with a first one of the at least three network protocols and maps the associated intermediate CoS information to second CoS information, wherein the second CoS information conforms to a second one of the at least three network protocols, as required by Applicant's currently amended claim 26.

As yet another example, the applied references fail to teach or suggest a computer-readable medium storing a computer program that comprises instructions to cause a processor toreceive, with a network device that supports at least three network protocols, a packet having data including a first class of service (CoS) information, wherein the first CoS information conforms to a first one of the at least three network protocols, store intermediate CoS information that provides a universal classification mechanism independent of any layer two protocols and protocols of layers on top of layer two protocols used by a network device, access the data of the packet to determine the first CoS information and process, based on the first CoS information determined for the packet, the data of the packet to include the intermediate CoS information, wherein the intermediate CoS information is used for mapping the first CoS information to a second CoS information that conforms to a second network protocol by updating the data of the packet, as required by Applicant's currently amended claim 29.

Independent Claim 34

The applied references lack any teaching to suggest a method comprising processing a packet with a first interface of a network device that supports at least three network protocols to access data within the packet by determining one of the at least three network protocols by which the packet is received and applying one of a plurality of policies that corresponds to the determined one of the at least three network protocols to generate metadata, as required by Applicant's currently amended claim 34.

The applied references further lack any teaching to suggest the method further comprising associating the packet with the metadata, wherein the metadata defines protocol-independent class of service (CoS) information, and wherein the protocol-independent CoS information provides a universal classification mechanism and is independent of any layer two protocols and protocols of layers on top of layer two used by the network device to forward packets within a

network and subsequently processing the packet with a second interface of the network device in accordance with the protocol-independent CoS information, as required by Applicant's currently amended claim 34.

While Applicant has amended claim 34 in a manner similar to that of claim 1, Applicant submits that the amendments to claim 34 recites additional elements not recited by the amendments to claim 1. In particular, Applicant has amended claim 34 to require processing a packet to access data within the packet by determining one of the at least three network protocols by which the packet is received and applying one of a plurality of policies that corresponds to the determined one of the at least three network protocols to generate metadata. The combination of Kuhl and Kilkki lack any teaching to suggest this limitation.

Kuhl, as stated above, fails to even mention accessing the data within the packet, let alone accessing the data within the packet by determining one of the at least three network protocols by which the packet is received, as required by Applicant's currently amended claim 34. Instead, Kuhl is silent with respect to accessing a packet and instead bases the classification of ATM cells on the connection over which the ATM cells are received. The connection however is always an ATM connection in accordance with the ATM protocol. Kilkki does not cure this deficiency. Consequently, the applied references fail to teach or suggest this limitation.

Moreover, the applied references lack any teaching to suggest processing the packet by applying one of a plurality of policies that corresponds to the determined one of the at least three network protocols to generate metadata. Kuhl, as described above, provides a static mapping between ATM connections and intermediate class of service information that is wholly independent from the type of protocol by which the packet is received. Kikki, much as above, fails to cure this deficiency. Accordingly, the applied references fail to teach or suggest this limitation as well.

Dependent Claims 2–14, 16–23, 25, 27, 28, 30–33 and 35–37

The arguments made above with respect to independent claims 1, 15, 26, 29 and 34 apply to each of claims 2–14, 16–23, 25, 27, 28, 30–33 and 35–37 by virtue of these claims 2–14, 16–23, 25, 27, 28, 30–33 and 35–37 depending from respective independent claims 1, 15, 26, 29 and 34.

In the Final Office Action, the Examiner rejected claim 24 under 35 U.S.C. 103(a) as being unpatentable over Kuhl et al. (US 2003/0118026) in view of Kilkki et al. (US 6,041,039) as applied to claim 15, and further in view of Hughes et al. (US 6,434,612). Applicant respectfully traverses the rejection to the extent such rejections may be considered applicable to the claims as amended. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

Hughes fails to cure the deficiencies described above with respect to Kuhl and Kilkki. Instead, Hughes is directed to a ***connection*** control interface for switches in a network.[5] Again, much like Kuhl, it appears that Hughes concerns ***connections*** rather than individual packets. Hughes therefore lacks any teaching to accessing first CoS information within a packet and mapping the first CoS information to intermediate CoS information based on the class of service determined for the packet, as required by Applicant's independent claims. The Hughes system, again much like Kuhl, supports a single protocol, e.g., the ATM protocol, and not at least three protocols, as required by each of Applicant's independent claims. Hughes therefore fials to cure the deficiencies noted above with respect to Kuhl and Kilkki.

Claim 24 depends from currently amended independent claim 15 and by virtue of this dependent benefits from the arguments made above with respect to claim 15. As Hughes fails to cure the deficiencies noted above with respect to the rejection of claim 15, Applicant submits that the applied references of Kuhl, Kilkki and Hughes fails to teach or suggest Applicant's claim 24.

For at least these reasons, the Examiner has failed to establish a prima facie case for non-patentability of Applicant's claims 1–23 and 25–37 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

New Claims:

Applicant has added claims 39 to the pending application. The applied references fail to disclose or suggest the inventions defined by Applicant's new claims, and provide no teaching

[5] Abstract.

that would have suggested the desirability of modification to arrive at the claimed inventions. No new matter has been added by the new claims.

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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